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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,521	07/10/2003	Kristian Blidegn	14069-004001 / Beat Frequ	1201
26211	7590	08/01/2006	EXAMINER	
FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			STOCK JR, GORDON J	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 08/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,521

Applicant(s)

BLIDEGN, KRISTIAN

Examiner

Gordon J. Stock

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 14-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Amendment received on May 1, 2006 has been entered into the record.

Drawings

2. The Drawings received on July 10, 2003 are accepted by the Examiner.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claims 1-5, 8-13, 26** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In **claims 1, 3, 4, 5, 8, 9, 10, and 26** the limitations ‘determining whether ...signal (**claim 1**),’ ‘determining whether...comparison (**claim 3**),’ ‘determining whether ... on the detected optical signals (**claim 4**),’ ‘determining an amount of misalignment (**claim 5**),’ ‘determining whether ...optical signal (**claim 8**),’ ‘determining whether ...detected optical signal (**claim 9**),’ ‘detecting a misalignment (**claim 10**),’ and ‘determining whether ...optical signal (**claim 26**)’ are abstractions without a tangible result. Merely ‘determining/detecting’ would not appear to be sufficient to constitute a tangible result, since the outcome of the determining/detecting step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. See OG Notices: 22 November 2005, "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility".

Specifically: Part b. *Practical Application the Produces a Useful, Concrete, and Tangible Result* under Section IV *Determine Whether the Claimed Invention Complies with the Subject Matter Eligibility Requirement of 35 U.S.C. Sec. 101*, sentence 3, in the OG Notice from 22 November

Art Unit: 2877

2005 states ‘In determining whether the claim is for a “practical application,” the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and concrete, but rather that the final result achieved by the claimed invention is “useful, tangible, and concrete.”’

Claims 2, 11-13 are rejected for being dependent upon a rejected base claim. In addition, the further limiting of the parent **claim 1** with ‘the optical signal has a beat frequency (**claim 2**),’ ‘the first and second patterns of marks comprise digital marks (**claim 12**)’ and ‘the first pattern of marks has approximately a fifty percent duty cycle (**claim 13**) does not constitute a tangible result to overcome the rejection under 35 U.S.C. 101 above.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claim 1, 5, 6, 7**, is rejected under 35 U.S.C. 102(e) as being anticipated by **Kuroda et al. (6,628,392)**.

As for **claim 1**, Kuroda discloses directing light onto components of an optical assembly in which a first component includes a first pattern of marks and a second component including a second pattern of marks (Fig. 19b: 1901-1904 with 1905); wherein, the frequencies of the patterns are different (col. 14, lines 55-62); detecting an optical signal based on light transmitted

Art Unit: 2877

through the first and second patterns of marks (Fig. 19b: 1908); wherein the detected optical signal corresponds to a superposition of the first and second patterns, a superposition of their scattered light (col. 14, lines 18-27); determining whether the first and second components are properly positioned with respect to one another based on the detected optical signal (col. 14, lines 28-35).

As for **claim 5**, Kuroda discloses everything as above (see **claim 1**). In addition, he discloses determining an amount of misalignment between the first and second components (col. 14, lines 34-37).

As for **claims 6-7**, Kuroda discloses everything as above (see **claim 1**). In addition, he discloses adjusting a relative position thereby fixing position to correct positional deviation for proper alignment (col. 14, lines 49-55).

7. **Claim 26** is rejected under 35 U.S.C. 102(b) as being anticipated by **Bartelt et al.** (4,596,467).

As for **claim 26**, Bartelt discloses in a precision alignment system the following: directing light onto components of an optical assembly in which a first component, a mask, includes a first pattern of marks with a first frequency and a second component, a substrate, includes a second pattern of marks with a second different frequency (Fig. 4: 22, 20, 42; col. 7, lines 62-67); detecting an optical signal corresponding to a superposition of the first and second patterns (col. 8, lines 1-6); determining whether the first and second components are properly positioned with respect to one another based on the detected optical signal (col. 3, lines 30-35); wherein, the light impinges the first and second components in a direction substantially perpendicular to the first and second patterns of marks (Fig. 4: 62).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kuroda et al. (6,628,392)** in view of **Brueck et al. (5,343,292)**—previously cited.

As for **claim 10**, Kuroda discloses everything as above (see **claim 1**). He is silent concerning detecting misalignment on the order of less than .5 microns. However, Brueck discloses the need to detection of misalignment on the order of less than .5 microns for high yield manufacturing (col. 1, lines 5-20). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to detect misalignment on the order of less than .5 microns in order to provide high yield manufacturing of microelectronic devices with critical dimensions of about .15 microns.

10. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kuroda et al. (6,628,392)**

As for **claim 11**, Kuroda discloses everything as above (see **claim 1**). Kuroda does not explicitly state that a wavelength that is not absorbed by the first and second components is used, but he does state that an alignment light with a particular wavelength is used (col. 14, lines 18-20). Examiner takes official notice that it is well-known in the art to use an alignment light with a wavelength that is different from an exposure wavelength to align a wafer and mask.

Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was

Art Unit: 2877

made to use an alignment light with a wavelength that is not absorbed in order to prevent unnecessary and wrongful exposure to the substrate.

11. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kuroda et al. (6,628,392)** in view of **Lercel (6,610,446)**—previously cited.

As for **claim 12**, Kuroda discloses everything as above (see **claim 1**). He is silent concerning digital marks. However, Lercel teaches using digital marks for position data (col. 3, lines 60-67; col. 4, lines 1-30). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have alignment marks comprise digitally encoded marks in order to provide positional data for alignment of the mask and wafer within nanometer resolution.

12. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kuroda et al. (6,628,392)** in view of **Wu (4,578,590)**—previously cited.

As for **claim 13**, Kuroda discloses everything as above (see **claim 1**). He is silent concerning a fifty percent duty cycle. However, Wu in a continuous alignment target pattern discloses using a fifty percent duty cycle for alignment (Fig. 2). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the alignment patterns have a fifty percent duty cycle in order to accurately align a mask and wafer.

Allowable Subject Matter

13. **Claims 2-4** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 8-9 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action.

As to **claim 2**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method a beat frequency that is based on the first and second frequencies, in combination with the rest of the limitations of **claim 2**.

As to **claims 3-4**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method the use of a reference pattern with the rest of the limitations of **claims 3-4**.

As to **claim 8**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method flipping the first component onto the second component, in combination with the rest of the limitations of **claim 8**.

As to **claim 9**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method the first component comprises a laser diode chip and the second component comprises a light guiding circuit, in combination with the rest of the limitations of **claim 9**.

Conclusion

14. Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. *In re Selmi*, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); *In re Fischer*, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also *In re Boon*, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate

Art Unit: 2877

information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the **next reply** after the Office action in which the well known statement was made.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
- U.S. Patent 4,912,322 to Ichikawa
 - U.S. Patent 5,182,613 to Ieki et al.
 - U.S. Patent 5,206,704 to Huber et al.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (571) 273-8300

Art Unit: 2877

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gs

July 22, 2006



**HWA (ANDREW) LEE
PRIMARY EXAMINER**

Gregory J. Toatley, Jr.
Supervisory Patent Examiner
Art Unit 2877